CITY OF LONG BEACH
Gas & Oil
DEPARTMENT

G-228P

SPECIFICATION FOR INSTALLATION OF P.E. GAS MAIN AND SERVICES

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Materials:

Plastic Pipe and Fittings:

The Contractor shall furnish and deliver yellow polyethylene pipe in accordance with the following:

NOMINAL SIZE (Inches)	SDR	*OUTSIDE* DIAMETER *(Inches)*	*Minimum Wall*	*APPROX. UNIT WEIGHT (Lbs., Per Ft.)*
¾"IPS	11.0	1.050	.095	.12
1"IPS	11.0	1.315	.119	.19
1 ¼"IPS	10.0	1.660	.116	.34
2"IPS	11.0	2.375	.216	.63
4"IPS	11.5	4.500	.395	2.19
6"IPS	11.5	6.625	.576	4.71
8"IPS	11.5	8.625	.750	7.99

All PE 2406 (yellow) polyethylene pipe to be furnished shall be new and unused, of domestic manufacture and free from all defects. The pipe shall be manufactured, tested and marked in strict conformance with the requirements of one of the following pipe specifications:

ASTM D 2513, D3261 . . . . . Plastic Pipe
ASTM D 1248 and D 3350 for a PE 2406 material . . . . . Plastic Pipe, Fittings

Pipe markings shall also comply with the limitations prescribed in U.S. Department of Transportation Pipeline Safety Standards, Part 192, Title 49 - Transportation of Natural and other Gas by Pipe Line, Paragraph 192.63. Two copies of the Inspection Certificate or Test Report certifying compliance with the appropriate Specification shall be furnished for each pipe size and heat or lot number. These documents shall be delivered to Long Beach Gas and Oil Department, Engineering Division, 2400 E. Spring St., Long Beach, CA 90806 or LBGOD Inspector on site.

Pipe shall be stenciled "Long Beach Gas and Oil Department – 562.570.2140". Size, type and spacing of lettering shall be consistent with supplier's standard identifiers.

Riser Assemblies:

Risers shall be Perfection Corporation Risers, or a Long Beach Gas and Oil Department approved equal, as indicated:

Size		Part No.
¾" Riser	-	79279
1" Riser	-	79405
1 ¼" Riser	-	79731
2" Riser	-	79879

The meter stop valve shall be installed prior to applying the LycroPro-Finish for additional protection at the thread intersection with the valve.

A protective cap shall be provided to cover the end of the plastic pipe and a plug shall be provided in the valve outlet to protect the threads.

Care shall be taken during shipment, delivery and installation to prevent damage to both the piping assemblies and the pipe coating.

Transition Fittings:

I.P.S. Schedule 40 steel x I.P.S., SDR-11, P.E. 2406, polyethylene, with epoxy coating on the steel section and the steal end beveled for welding. Approximately twenty-four inches (24") long with a tamperproof, gas tight, mechanical seal, internally reinforced, at the mid point.

Tapping Tee:

PERFORMANCE products only:

SIZE	PART NUMBER
2x3/4	SDR 11, PE2406 1032711
2X1	SDR 11, PE2406 1005075
2X2	SDR 11, PE2406 1047243
4X3/4	SDR 11, PE2406 1049291
4X1	SDR 11, PE2406 1005099
4X2	SDR 11, PE2406 1047247
6X3/4	SDR 11, PE2406 1049292
6X1	SDR 11, PE2406 1005108
6X2	SDR 11, PE2406 1047249

Fusion Tee:

PERFORMANCE products only:

SIZE	PART NUMBER
¾"	SDR 11, PE2406 1048630
1"	SDR 11, PE2406 1048661
2"	SDR 11, PE2406 1005510
4"	SDR 11, PE2406 10055278
6"	SDR 11, PE2406 1005291

Branch Saddles:

PERFORMANCE products only:

SIZE	PART NUMBER
4x2	SDR 11, PE2406 1005179
1"	SDR 11, PE2406 1005196
2"	SDR 11, PE2406 1005246
4"	SDR 11, PE2406 1005278
6"	SDR 11, PE2406 1005291

Electrofusion Fittings:

INNOGAZ Electrofusion Coupling System IPS, PE 2406
¾" – P/N 88386347-3/4IPS
1" – P/N 88386354-1IPS
1 ¼"- P/N 88371788-1-1/4IPS
2" – P/N 88385760-2IPS
4"- P/N 88385786-4IPS
6"- P/N 88385794-6IPS

Excess Flow Valves:

UMAC Model 58, ¾" IPS, PE2406, SDR-11, Socket fusion type, 700 series

Valves:

Perfection:

Size	Part Number
2"	46000
4"	47000
6"	48001

Transition Fittings:

ASTM schedule 40 steel x SDR-11, P.E. 2406, polyethylene, with epoxy coating on the steel section and the steel end beveled for welding. Approximately 24 inches long with a tamperproof, gas tight, mechanical seal, internally reinforced, at the mid point.

SIZE	PART NUMBER
¾"	Lyco-LT060S060Y-AT
1"	Lyco-LT070S070Y-AT
1-1/4"	Lyco-LT080S080Y-AT
2"	Lyco-LT0200S0200Y-AT
4"	Lyco-LT400S4002-AT
6"	Lyco-LT600S600Z

Hauling and Distributing Pipe and Materials:

The Contractor shall be required to unload the pipe and distribute it along the route of the pipeline. Care must be taken not to obstruct the roadways any more than is necessary, to lay the pipe well off the traveled roadway where it will not be a menace to traffic, to leave all private and public driveways, alleys, streets, etc., open and handle the pipe in a careful manner so that the pipe and pipe coating or wrapping will not be damaged.

Testing of Persons Performing Plastic Pipe Joining:

After notification of award and prior to the start of any work on plastic pipelines the Contractor shall submit to the Long Beach Gas and Oil Department a list of personnel proposed to use to perform plastic pipe joining. The list shall contain a brief outline of each person's experience to satisfy the requirements of Part 192.285(a)(1).

Long Beach Gas and Oil Department will administer the necessary qualifying tests in accordance with the requirements of Part 192.285 (a)(2). Long Beach Gas and Oil Department will furnish pipe and fittings for the tests. The Contractor, at his expense, must provide all other equipment such as heating equipment, electric generators, timing devices, connecting wiring, clamps, etc consistent with what will be used to perform the work in the field.

In scheduling the qualifying tests the Contractor must allow for a period of 3 working days after the tests are administered before the test results will be available. Upon successful completion of testing LBGOD will issue a "Qualifications Card" that must be presented to LBGOD representative on site when requested along with a picture ID.

Pipeline Plastic Pipe Qualification Testing:

The first test will consist of heat fusing a section of two-inch (2") diameter plastic pipe into both sides of a plastic socket coupling using the qualified joining procedure furnished by Long Beach Gas and Oil Department. The second test shall consist of butt fusing two sections of two-inch (2") and four-inch (4") diameter plastic pipe together using the qualified joining procedure furnished by Long Beach Gas and Oil Department. The third test shall consist of heat fusing a three-quarter-inch (¾") service tee or saddle on top of a section of two-inch 2" pipe held in the horizontal position, using the qualified procedure furnished by Long Beach Gas and Oil Department. The resulting joints will be examined and tested in accordance with Part 192.285(b).

Materials and testing costs will be borne by the Contractor. Long Beach Gas and Oil Department will charge $100.00 per test, whether or not the test is successful.

Full payment for successfully qualifying personnel to perform service line and main plastic pipe joining, except for materials identified as being furnished by Long Beach Gas and Oil Department and costs associated with testing the completed joints (except as otherwise noted), shall be included in the base price bid for the work.

Long Beach Gas and Oil Department will accept qualification testing for heat fusion of 6-inch (6") diameter plastic pipe and larger from the Southern California Gas Company; proof of qualification is required before start of work.

Plastic Pipe and Fitting Installation:

Plastic pipe joints shall be made by the socket or butt heat fusion methods only, and shall not be disturbed until they have properly set per manufactures specifications. Plastic pipe may not be joined by threaded joints, miter joints or other mechanical joints. Electro-fusion joints may be used with the permission of a Long Beach Gas and Oil Department Inspector.

Heat fusion joints shall comply with the following:

a. Mating surfaces of the joint shall be clean, dry and free of material which might be detrimental to the joint.

b. Heat-fusion joints shall be made by a device that heats the mating surfaces of the joint components uniformly and simultaneously to essentially the same temperature.

c. Heat may not be applied with a torch or open flame.

d. Manufacturer's Guidelines.

Plastic piping components are susceptible to damage by mishandling. Gouges, cuts, kinks or other forms of damage may cause failure. Care shall be exercised during handling and installation to prevent any such damage.

Sections of plastic pipe containing unacceptable defects shall be cut out and replaced with serviceable plastic pipe, using heat fusion fittings. All joints shall be made only by personnel who are qualified to make such connections, using heating and fusion joining tools that have been specifically approved by Long Beach Gas and Oil Department.

Plastic pipe shall be installed in such a way that shear or tensile stresses resulting from construction, backfill or other external loadings are eliminated.

Care shall be exercised at all times to protect the plastic materials from fire, excessive heat, or harmful chemicals. Thermoplastic pipe and fittings shall be protected from long-term exposure to direct sunlight.

Plastic pipe shall be installed with an electrically conductive 12-gauge solid copper tracer wire with black insulation to provide a means of locating the pipe. The tracer wire shall be taped to the plastic pipe at intervals of not more than ten-feet (10'). Where the transition from steel to plastic occurs the tracer wire shall be securely brazed to the steel portion of the transition fitting.

A tracer wire continuity check shall be completed by the contractor and approved by the Inspector prior to backfilling the excavations.

Where steel to plastic transition fittings are installed the work shall be approved by Long Beach Gas and Oil Department Corrosion Control personnel prior to backfilling.

Plastic piping shall be laid on prepared pipe bedding as specified in the paragraph entitled "Bedding, Backfill and Street Surface Restoration" of Specification 228. Blocks shall not support plastic piping.

The piping shall be installed with sufficient slack to provide for possible contraction.

Plastic pipe may be deflected per manufacturers recommendations. Bends shall be free of buckles, cracks or other evidence of damage. Miter bends are not permitted.

Where existing substructures cannot be avoided by the use of smooth bends the Contractor shall make the necessary elevation changes or offsets using 45-degree socket fusion elbows. Long Beach Gas and Oil Department's Inspector shall be consulted to determine whether to route the new pipe over, under or around any obstruction. A minimum separation of twelve-inches (12") shall be maintained between the new pipe and any other substructure unless the Inspector waives this requirement due to unusual circumstances which render it impractical.

The Contractor shall take all reasonable steps during handling and installation in order to minimize the possibility of dirt or other foreign materials getting inside the pipe. Plastic pipe ends shall be kept closed when left in trench excavations or in work areas for overnight periods. Factory installed caps shall be left on plastic pipe until ready for immediate use.

Control of Static Electricity During Squeeze-Off and Purging Operations:

Friction induced static electricity can buildup on any non-conductive surface, such as plastic pipe, creating the possibility of a spark discharge of sufficient energy to cause ignition of blowing natural gas if the proper air/gas mixture is present. A film of water on the surface of the pipe provides a conductive path to rapidly diffuse static electricity. All pipe in the work area which may be touched during purge or squeeze operations must be sprayed, doused with water, or kept wet by wiping it with a water saturated absorbent cloth. Leave the wet cloth wrapped around the pipe near the end of the opening.

Where metallic pipe is involved, construction personnel shall wear dry gloves and take precautions to prevent any other part of the body from coming into contact with pipe, fittings, etc. to help ensure the prevention of accidental ignition of blowing gas.

P.E. to Steel Tie-in:

All welding to be done in accordance with LBGOD Specification number G-228S by approved/tested personnel only.